COMPLIMENTS OF THE AUTHOR.

ALBUMINURIA IN PREGNANCY.

BY

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(Read before the first named Society July 14, 1880.)

GENTLEMEN—In discussing Albuminuria Renalis, *as a disease of pregnancy*, I shall of necessity, in the brief time at command, confine myself almost wholly to matters of practical value. I shall illustrate the subject by introducing some of the more instructive cases, which have come under my own observation, and I shall do this the more freely, as the subject of Bright's disease is to be presented technically by another gentleman.

ALBUMEN is not found as a constituent in the urine of healthy persons; it, however, not seldom occurs as a transient element in the urine of pregnant women and during the course of not a few diseases. In such cases the albuminuria is incidental, is unattended with ill effects, and it passes away directly on the removal of the cause producing it.

It is, doubtless, true that many cases of albuminuria in pregnancy are innocuous or pass wholly unrecognized.

Frequency.—By independent observations, different authors have shown that albumen exists in the urine of more than 20 per cent. of pregnancies, and the percentage is still higher in the case of primiparæ, some putting the latter estimate as high as 40 per ct. In some cases the disease is noticed in recurrent pregnancies, and it is found more liable to occur in multiple pregnancies. In one case of triplets, however, and several twin pregnancies, that have occurred in my own practice, albuminuria has not been discovered.

Amount of Albumen in the Blood of Pregnant Women.—There is a diversity of opinion expressed as to the amount of albumen found in the blood of pregnant women, some affirming it to be in excess, while others, I think more correctly, hold that the amount of albumen is somewhat diminished, in consequence of a drain upon the system for the supply of nutrition to the fœtus.

Persistent Albuminuria is justly looked upon, in any case, as a symptom of grave import, though we are unable, at present, to trace precisely the connection between the albumen and the disease in question.

There can be no doubt that there exists a most intimate relation between albuminuria and some of the most formidable and dangerous complications of pregnancy and the puerperal state.

Let us now look more carefully at albuminuria as a disease of pregnancy.

Cause.—Alteration of the blood crasis, caused by pregnancy, and mechanical interference with the venous circulation of the abdomen, have generally been assigned as the most common causes of albuminuria in pregnancy; and much can be said in advocacy of this theory; and doubtless, also, many cases are dependent upon these causes.

We are not to forget, however, that other producing causes are to be taken into the account, and that many primiparæ, and pregnant women carrying large tumors in addition, are subject to excessive pressure within the abdomen without developing albuminuria.

The disease is not unfrequently pronounced prior to the possibility of pressure from a gravid uterus and without any known cause of obstruction to the renal circulation. It may be developed in connection with specific diseases, *i. e.*, scarlet fever, rheumatism, malaria, and so on; or it may be associated with some serious lesion of the heart, lungs or brain, and it may appear without any assignable or discoverable cause. A pregnant woman may have Bright's disease, independently of the pregnant state.

We should *carefully differentiate* in each case.

As the question now stands, in my own opinion, we can only affirm definitely that parenchymatous inflammation of the kidneys, constituting the albuminuria of pregnancy, may be developed during pregnancy; that it generally disappears directly on delivery; and that we are at present ignorant of any *specific cause* producing it.

Symptoms.—The symptoms of albuminuria are by no means uniform. Our attention will usually be arrested by the development of dropsies, local and general, which in severe cases go on to an enormous extent. The face and eyelids are quite uniformly puffy, and there is almost always a waxy pallor of the countenance. The urine is scanty and of a high specific gravity. It may become solid on boiling and the addition of nitric acid. We have headache, dizziness, confusion of ideas, an unsteady walk, sleeplessness, impaired vision, spectra; and amaurosis often comes on suddenly just before an attack of convulsions.

In fact, any serious abnormal development in a pregnant woman—not otherwise accounted for—should arouse our apprehension and lead to a chemical and microscopical examination of the urine.

Usually, these symptoms are not developed until the last months of pregnancy, but we meet with exceptional cases. Sometimes our first indication of trouble will be the occurrence of uræmic convulsions and speedy death.

Albuminuria is known to have been developed subsequently to an attack of convulsions, and in such cases it is supposed to be the result of some profound disturbance of the circulation.

It is a noticeable fact that we are more liable to have uræmic attacks in the nephritis of pregnant women than in any other form of the disease.

(In a case of tubercular nephritis, occurring in a male, resulting in abscess and nearly a total destruction of both kidneys, reported by me in 1871, there was almost an entire absence of uræmic symptoms.)

It is unquestionably true that some of the most grave complications of parturition are due to albuminuria, and that some serious cases of post partum hemorrhages are due to the same cause.

Prognosis.—Here, again, we have no certain data, but we have abundant reason to fear for both mother and child, when we have a development of any considerable number of the more serious symptoms indicated, and our danger is relatively great the earlier they are developed.

If the case is acute, occurring a short time before delivery, the prognosis is more favorable. The danger from convulsions is more dependent upon the severity of the attack than upon their frequency.

We have abundant reason to believe that, in the nephritis of pregnancy, the fœtus suffers and perishes for want of nutrition and from uræmic poisoning; hence the frequency and complications of premature delivery in such cases.

It has been estimated that 49 per cent of primiparæ, affected with albuminuria, and who escape eclampsia, die from some morbid condition traceable to it, and it is also said that about one-third of the dangerous accidents, incident to puerperal eclampsia, cease as soon as the uterus is emptied.

Treatment—It is most important, in the successful management of pregnant women affected with albuminuria, *that we recognize the condition at the earliest possible moment.* This point cannot be too emphatically insisted upon; for when the more profound symptoms have been developed, it is often, unhappily, too late to rescue our patients.

It is fundamental, I think, that we distinguish the disease, in most cases, as one of debility from impoverishment of the blood, as well as from the accumulation of poisonous elements within the system.

We must regulate the diet and habits with reference to the demands of each case. Skimmed milk, the white of eggs and fish are suited to such cases. Rest in the recumbent position, hot baths, with free diaphoresis, are important measures to adopt. Dry cupping, tincture of iodine and mustard plasters over the region of the kidneys should be employed. Mild saline cathartics and diuretics may be used, and in some cases quite free catharsis may be the least of evils. Jaborandi, digitalis, ergot in small doses, benzoic acid, quinine, iron, etc., etc., have been usefully employed.

Opium in some of its forms may allay the peculiar nervous condition which attends this disease, and I think that I have derived as much benefit from its use as from any other remedy which I have adopted.

These and other remedies may be intelligently employed to remove or mitigate the symptoms, but in a considerable proportion of cases the complications increase upon us, the life of the patient and her offspring are seriously imperiled, and we are confronted with one of the gravest and most responsible questions in the whole range of medical or surgical practice. *i. e.*, shall we induce premature labor, and when?

Each case must be a law unto itself—no positive rule can be laid down.

In view of the cases which have come under my own observation, I am clearly of the opinion that, where our treatment fails to arrest the disease or mitigate the symptoms in cases of a serious aspect, we should secure delivery as soon as it can be done with safety to mother and child.

In those cases where we have a development of the graver symptoms in cumulative force, where we have uræmic convulsions, where we have reason to believe the fœtus to be dead, or where the disease is making a complicated or protracted labor perilous to the mother, we should effect delivery at the earliest practicable moment, we should do this unhesitatingly and with resolution.

I am satisfied that a timid practice here has cost many precious lives. The risk to the mother is comparatively little, and the child is usually viable before interference becomes necessary, and it stands in almost every case, at least, an equal chance of surviving.

In these cases we must of necessity remove the cause of disease, in order to the cure of the patient. We may not remove a gravid uterus, but we can empty it!

Pregnancy is the cause of the renal disease in a large proportion of these cases. Danger ceases in one-third of the cases as soon as delivery is effected.

Case No. 1.

May 27, 1868, saw Mrs. J. B. F., æt. about 40; twice married; 5 months pregnant, for the first time; a farmer's wife; strong, active and muscular. Se-

vere headache; dizziness; double vision; confusion of ideas; costive bowels; urine scanty; premonitory symptoms of convulsions. She had complained for three or four weeks. Bled freely; gave calomel and castor oil.

May 28th, she was apparently better, but very weak; pulse feeble and rapid; urine 1030, almost solid on boiling. Gave quinine, 4 grs. once in six hours; mur. tinct. ferri and digitalis; generous diet. May the 29th, she miscarried; a dead fœtus; no untoward symptoms. In two weeks no trace of albumen in the urine.

I am not sure that the quinine did not hasten the expulsion of the fœtus, as a utero motor stimulant.

This lady has never been quite free from head symptoms since, and a year ago she suffered from an attack of hemiplegy from which she is now slowly recovering.

Case No. 2.

Dec. 16, 1873, 9 o'clock, evening. Saw Mrs. F. F. for the first time; married; æt. about 22. Must have weighed 185 to 190; was the embodiment of gross, vigorous health; complained to me only of facial neuralgia and a slight headache, attributable to a hearty dinner. I prescribed chloroform and aconite liniment, and aromatic spirits of ammonia.

At 2 o'clock in the morning, the husband furiously summoned me from a sound sleep and announced that I had killed his wife; she had just died in a fit! I hastened to the scene of disaster, supposing that she had taken the liniment instead of the ammonia.

I found her 7 months pregnant, and suffering from the most severe and continuous convulsions I have ever witnessed. She had eaten "enormously" from the first, and had never made a complaint until the day of my seeing her. With much difficulty, I bled her 20 ozs.; chloroform; hardly an appreciable remittance of symptoms.

At 4 o'clock, Dr. Charles H. Allen saw her with me. At this time, so far as we could judge, there had been no attempt at labor; no dilatation of the os. The urine was heavily loaded with albumen, though but little could be obtained for examination. Morphine (sub. cut. in half-grain doses) was repeated four times at intervals of 30 minutes, after which there was an intermission of the convulsions for 20 minutes, during which time we successfully placed a Barnes' dilator, which was followed by only slight results. Chloroform was resumed, and operative proceedings were strongly insisted upon; but the family would not consent to this, unless sanctioned by Dr. H. C. Gray, of Cambridge, who did not arrive until 11 o'clock A. M.

The membranes were ruptured at 12 M.; ergot and stimulants were given; chloroform continued. At 4.30 P. M., I performed craniotomy, the os being dilated to the size of a half dollar. She was delivered after laborious and constant traction at 5.45. The convulsions continued during the operation, notwithstanding the freest possible use of chloroform; no rupture of maternal tissues; no unusual hemorrhage; convulsions ceased; sterterous breathing, and death at 6.15.

Case No. 3.

Saw Mrs. L., Nov. 21, 1875, at 2.30 P. M. Married; æt. 31; 7 months pregnant; had miscarried the year previous. A slight, delicate lady, but possessed of much nervous energy and firm resolution. She was suffering intense agony, a colic, as she supposed, from having eaten freely of vegetables at dinner. She had taken morphine liberally without relief. I immediately proceeded to administer chloroform, and directly I thought she would die from its effects. On watching the case carefully, I differentiated labor pains from the spasms of

colic, which were unquestionably present. I found the os dilating and a slight hemorrhage.

She had suffered for six weeks from headache, dizziness, an unsteady walk, double vision, scanty urine, and depression of spirits; but had not consulted her attending physician, Dr. Chas. H. Allen, in reference to her condition, supposing that her symptoms were incidental to her condition.

At 4 o'clock P. M., Dr. Allen came in, and after consultation, we determined to terminate labor as soon as possible. Her condition was becoming hourly more critical, and hemorrhage was constantly becoming more pronounced; pulse feeble, rapid. The urine, drawn with catheter, was found to be of high specific gravity and heavily loaded with albumen.

Ergot, stimulants and concentrated nourishment were administered. At 10 o'clock, evening, morphine was given for relief and to secure, if possible, rest and recuperation.

Dr. A. remained with her during the night. At 5 in the morning, I found her in an alarming state from the loss of blood, and the hemorrhage was still active. Ergot in full dose, brandy and laudanum; forceps; syncope; death. The child had evidently been dead several days. The placenta was delivered and found to be apoplectic.

Case No. 4.

Jan. 5, 1878, I was hastily summoned to see Mrs. G., with Dr. A. M. Young, of Salem; æt. 25 years, married; naturally of vigorous health; had been active during the pregnancy. Third confinement. She had been delivered an hour before; at full term.

The labor had been easy and rapid; no untoward symptoms had been noticed. There was, however, considerable hemorrhage subsequent to the birth of the child, though not more than is frequently seen. The uterus was well contracted.

Perfectly conscious and able to move about in the bed, she was evidently dying from rapid exhaustion of vitality and paralysis of the respiratory muscles. Directly after a hasty consultation and the administration of stimulants and laudanum, she expired without a struggle.

We could obtain no urine for analysis; but the history of the case elicited the fact that, during the last weeks of pregnancy, she had developed an increasing pallor and puffiness of the face, and that she had also developed unequivocal symptoms of uræmic intoxication a few days prior to confinement, but this was not so pronounced as to lead the husband to notify her physician.

Case No. 5.

Feb. 14, 1878, saw Mrs. P. S., with Dr. B. F. Ketchum, of Cambridge; married; æt. about 40; several children; had spent several weeks constantly in the care of her children sick of scarlet fever, two of whom were still sick in the same room where she was laboring. She had been in labor 15 hours. The pains, at first vigorous, had almost ceased; liquor amnii well drained off; parts hot and dry; os moderately dilated; an enormous head, not hydrocephalic; presentation natural. There were pronounced symptoms of blood poisoning, exhaustion and impending trouble; urine heavily loaded with albumen.

The Dr. had employed forceps in vain, and we again applied them to no purpose. Convinced that an attempt to turn would certainly result in the death of the child and great additional peril to the mother, we determined upon craniotomy, which was successfully performed by a free use of the perforator, crotchet and craniotomy forceps. I have seldom been obliged to use more force in instrumental delivery.

(The child, simply covered with a cotton sheet, was placed near an open door, the mercury being 12 degrees below zero. It had cried during delivery, and

its heart was found to be active 35 minutes subsequently. The exigencies of the case prevented us from knowing the precise moment of its death, but it probably survived 40 minutes !)

The mother made a slow recovery from the effects of blood-poisoning. Mur. tinct. ferri, quinine and bromide of ammonia, with suitable nourishment, were relied upon.

Case No. 6.

Sunday morn, May 5, 1878. Called to see Mrs. F., in consultation with Dr. Chas. M. McLaurie, Drs. Maynard and Young conferring. Drs. McLaurie and Hale had been in attendance since Friday.

Æt. 22 yrs. ; married ; primipara ; 7 mos. pregnant. Urine gave alkaline reaction ; s. g. 1010 ; 5-8ths albumen, tested with heat and nitric acid ; no microscopical examination at this stage of the case. Pronounced anasarca ; girth of abdomen, 6 ft. 4 in. ; of thighs 3 ft. 2 in. ; genitals greatly tumified ; breathing seriously affected ; could not lie down for two weeks ; pulse 160 ; temp. 104 ; tongue dry ; general febrile symptoms. There were no manifest symptoms of cerebral uræmic poisoning. Ergot had been given, and other measures had been adopted to induce premature labor.

It was with extreme difficulty that the cervix uteri and os were reached digitally. No dilatation was found to exist, and there were no evidences of labor.

At 6 o'clock A. M., I ruptured the membranes by means of an uterine sound after a full dose of Squibs ergot. A large quantity of liquor amnii passed off during the day. Ergot, brandy, quinine, electricity, vaginal douches, etc., etc., were employed to no apparent effect. The symptoms were becoming hourly more urgent, and all agreed that our patient would soon die, if not delivered. No motion had been felt for a week, and fœtal circulation could not be detected by auscultation. At 7 P. M., I found the uterus somewhat settled and the os dilated to the size of a quarter dollar.

Dr. McLaurie assisiting, and holding the abdomen firmly, I proceeded at once with much difficulty to perforate the skull at the only available spot, *i. e.*, just above the nasal eminence of the frontal bone. With the usual instruments, and depending almost wholly upon the crotchet for traction, delivery was accomplished in 1 1-4 hour without accident to the maternal tissues and without an anæsthetic.

For 10 days the case progressed satisfactorily, the dropsies and albumen disappeared rapidly. On the 11th day she had a chill, general febrile symptoms, followed by the accession of an enormous dropsy within the peritoneal sac, labored breathing, etc., etc. ; albumen in large amount reappeared in the urine. A microscopical examination revealed numerous blood corpuscles, oil globules and a few well defined uriniferous tube casts. In two weeks these symptoms almost wholly passed away under full doses of rochelle salts, iron and quinine, beef tea, milk, etc., and warm baths.

A week subsequently, she as rapidly developed hydrothorax, both pleural cavities being simultaneously invaded. The action of the heart and lungs was greatly affected. Orthopnœa was so decidedly pronounced that she came near dying on assuming the recumbent position. Paracentesis seemed to be imperatively demanded, but the case yielded speedily to the following treatment, *i. e.* : Recipe: ext. fl. scutellariæ 2 1-2 ozs., tinct. digtalis 1 oz., tinc. hyosciami 1-2 oz., potassii nitratis 1-2 oz., ; a teaspoonful every 4 hours ; iron and quinine ; the external use of Churchill's tinct. of iodine, and concentrated nourishment. In two months she was quite fully recovered.

Jan. 13, 1879, I was called to see this patient again pregnant, about 5 mos., and suffering with measles.

Nothing noticeable occurred until Feb. 24, when she had a profuse epistaxis,

preceded by headache and dizziness for a few days. The urine was albumenous. The bleeding was exceedingly profuse, and was not finally checked until March 22. Tonics; concentrated nutrition; milk; diuretics, etc., etc., were employed and the case held under close observation.

By March 23, she had developed nearly the same complications as when I saw her first; not as much dropsy by considerable, but the prostration was more pronounced. After consultation with Drs. Maynard and Young, I introduced a succession of sponge tents during the day; ruptured the membranes at 6 P. M.; gave ergot and stimulants freely. Labor was induced and progressed favorably until 11 o'clock, when her vitality seemed quite exhausted. Morphine; rest until 12.30; labor resumed; ergot freely; stimulants. At 3 o'clock there was a collapse, and I thought she would die before I could deliver by turning or otherwise. I sent out for assistance. Ammonia, brandy, ergot; a few vigorous pains and she was delivered. She made a speedy recovery. Albuminuria disappeared within three weeks.

April 10, 1880, I was called to see her; again pregnant; 8 mos.; profuse epistaxis; slight headache, etc. Old symptoms developing, through in a much less marked degree; appetite and strength fair; urine 1-2 solid. As before, I plugged both nasal passages firmly with carbolized cotton saturated with Monsel's Solution, and I left the plugs one week, until they loosened. I had no further trouble with the bleeding. During the previous attacks, I removed the plugs on the 2d and 3d days and the hemorrhage proved very annoying.

Diuretic mixture; saline cathartics; iron; quinine; milk diet.

On the 19th, she gave birth to a dead child; no untoward symptoms; a rapid recovery to *apparent* health.

Case No. 7.

May 23, 1878, 12 o'clock night. Saw Mrs. C., of Rupert, Vt., with Drs. Maynard and Austin. Married; æt. 25 years.

Dr. Austin had been called incidentally at 11 o'clock the day previous; found her in severe puerperal convulsions; could get no history; at term; very imperfect attempt at labor. The convulsions were almost continuous and did not yield to treatment. Dr. Maynard saw her in the evening and found it impossible to employ forceps successfully.

When I saw her she was evidently wearing out rapidly, and the severity of the convulsions was increasing; pulse rapid and feeble; she was hardly conscious.

I failed in attempting to use the forceps, and while under ordinary circumstances I think turning would have been feasible in this case, we did not think it safe to introduce the hand into the uterus, inasmuch as she would not tolerate sufficient chloroform to insure quiet. Craniotomy upon a probably dead child was performed; convulsions ceased and she made a good recovery. We found the urine almost solid on boiling.

Case No. 8.

Dec. 28, 1878, saw Mrs. L., of Salem, with Dr. Maynard, 8 o'clock; married; æt. 37 yrs.; primipara. Indications of uræmic poisoning were more marked than in any case I have ever met. Dropsical developments were almost equal to those in Case 6. The dyspnœa was distressing; had not been able to distinguish objects across the street distinctly for weeks; could not see clearly across the room; could not see me three feet away with the left eye closed. Saw dogs, elephants, giants, etc., moving constantly about the room; double vision; headache; sleepless; could not lie down, unless upon an elevated plane; pulse feeble, irregular, rapid, 140 to 150; intellect clear. She was greatly exhausted by company.

Her troubles commenced as early as the 4th month of pregnancy, but she steadily refused to see her physician until the Wednesday previous; and then

refused an examination of her case, notwithstanding the waters had commenced discharging. Dr. Maynard had examined the urine from time to time and found it heavily loaded with albumen. We had conferred in the case, and had advised the husband to insist upon more specific care.

No labor pains up to the time of my seeing her. We gave a full Tulley powder to secure rest—and a positively unfavorable prognosis to her friends. She had a refreshing sleep from 2 until 7 o clock in the morning.

Labor commenced vigorously at 9 o'clock A. M., the 29th. We saw her at 9.45. Dr. Maynard, making an examination, thought she would soon be through, even before I could return with instruments, battery, etc., which we held in readiness for an emergency. I was gone 20 minutes. She was in great agony for breath, pulseless, and in fearful peril, when I returned. Had had four expulsive pains. We instantly gave ergot and ammonia, and I had just locked the forceps, when, from a conscious appeal to us a moment before, she was dead!

A hurried consultation ; in 13 minutes after death, I delivered the child by abdominal section, which survived four hours under the use of artificial respiration, the warm bath, and electricity.

Case No 9.

Tuesday night, July 5, 1880, saw Mrs. H., of Hebron, with Drs. Irwin and Maynard ; æt. 35, a widow, her husband having died suddenly in March last ; married 17 years ; was very slight when married ; said to weigh 250 lbs. ; never pregnant before.

Dr. Irwin had been with her 48 and Dr. Maynard 16 hours. For two or three months she had been developing marked symptoms of albuminuria ; headache ; dizziness ; double vision ; pronounced deafness ; puffiness of face, and general anasarca. The labor had been very unsatisfactory ; pains at times quite vigorous, then entirely passing off ; powers of life were rapidly declining ; pulse rapid, feeble. She was delirious, and premonitory symptoms of convulsions were present. Both gentlemen had attempted unsuccessfully to use the forceps, and I was equally unsuccessful.

We considered turning almost wholly impracticable in the case, and we proceeded to deliver by craniotomy, and I have never encountered greater difficulties in the operation, from the amount of maternal tissues opposed, and from the fact that, the child having been sometime dead, the bones of the head and the scalp easily gave way on slight traction. By the combined use, however, of the craniotomy forceps, vectis and hands at the same time, delivery was safely effected. When Dr. Maynard and I left at 4 o'clock in the morning, she was comparatively comfortable and the mind clearer ; but the pulse was rapid and feeble ; prostration pronounced. Our impression was that she would not survive.

A letter from Dr. Irwin this morning reported the case as progressing favorably, with nothing developed to cause serious apprehension.

P. S —An interesting letter was read from Dr. Thomas F. Cock, of New York city, relating a fatal case of albuminuria in pregnancy, which recently occurred in his practice at Brooklyn, and in which the writer noted the fact, that the views of practice advocated in this paper were being adopted by many prominent obstetricians.

It may be added that, at this date, Nov. 5th (the time of going to press , Case No. 6 presents albuminous urine and hyaline casts, with moderate corresponding symptoms. The general health, however, continues quite good.

In Case No. 7, there is at present a pregnancy of 8 months, and not a symptom of ill health.

In Case No. 9, there has been perfect recovery.

No 6- was again pregnant in 81- miscarried 1, mos- Epileptiform- added to other complications- a repetition of what had gone before- 24 hours death- a case of Bright from the onset-